

## ***Procambarus (Pennides) ablusus* Penn 1963**

Hatchie River crayfish



Photo by C. Lukhaup.

### **Distribution, Habitat, and Behavior**

*Procambarus ablusus* occurs in southwestern Tennessee and northeastern Mississippi, although most of its range is in Tennessee. Hobbs (1989) reported the species from the Hatchie River system in Tennessee and Mississippi, including Alcorn, Tippah, and Tishomingo counties in Mississippi. In Mississippi, the species also occurs in the Lower Tennessee and Middle Tennessee–Elk basins in Alcorn and Tishomingo counties (Fitzpatrick 1990, 1996; MS crayfish database, this website), and juvenile females were recently collected from the Hatchie River in Union County, MS (MS crayfish database, this website). The species probably occurs in the north-flowing drainages of Prentiss County, MS, as well.

Like other members of the subgenus *Pennides*, *P. ablusus* is a stream dweller, using sluggish to moderately flowing streams and rivers (Bouchard 1972). One site containing the species had substrate consisting of clay, sand, and some gravel, and contained large woody debris and rip-rap (large rock)(MS crayfish database, this website). Bouchard (1972) categorized the species as a secondary burrower.

### **Life Colors and Distinctive Characters**

The coloration of *P. ablusus* is generally similar to that of other species in the *Pennides* subgenus. On the carapace, the dorsal background color is light brown to reddish brown and the ventrolateral background color is grey. Characteristic of *Pennides*, a wide dark band extends down the dorsolateral portion of the carapace, turning onto the dorsal surface near the caudal edge, and is bordered by a whitish band underneath. An irregular, very dark band also extends down lateral surfaces of the abdomen, bordered by a reddish-brown above and mottled white below.

Members of the *Pennides* subgenus are distinguishable from other *Procambarus* subgenera in Mississippi by the combination of two (usually) cervical spines (rather than one or none) on the carapace, simple hooks on ischia of the third and fourth pereopods (legs) of males (rather than on just the third pair), and a lack of long setae on the mesial margins of the palms of the chela (as is present in *P. mancus*).

The following descriptions are adapted from other sources (Penn 1963, Fitzpatrick 1996). *P. ablusus* has a wide areola with room for three to six punctations at the narrowest point. The long rostrum has raised, curved margins that converge anteriorly, terminating in strong marginal spines, lacks a median carina, and has a long acumen. Strong postorbital ridges terminate in spines, and the branchiostegal spine is small and acute. The two cervical spines are located at an interruption in the cervical groove. The antennal scale is long, reaching beyond the tip of the rostrum, and subtriangular with the widest point just proximal to midlength. Chelae are long and slender with 8-10 tubercles along the mesial margin of the palm and longitudinal rows of flat tubercles along the dorsal surface.

Form I male gonopods are relatively straight, with four terminal elements projecting distally. The mesial process extends distally beyond the other three elements. Fitzpatrick described the form I gonopod as follows: “the cephalic process, slightly distinct from the subequal, subparallel central projection, is divergent from the slightly longer mesial process by < 50 degrees; a small caudal process arises from the distal part of an obtuse caudal knob and extends distally not quite so far as the central projection; a tuft of setae partly obscures, except for the mesial process, the terminal elements.”

Females have smaller chelae. The annulus ventralis is spindle shaped and moveable, and the cephalic margin is not obscured by the smooth caudal margin of the anterior sternite. A depression bordered by strong lateral ridges extends caudally from the cephalic margin through the anterior half of the annulus ventralis. The sinus originates in the depression near the middle of the annulus ventralis and extends sinuously to near the caudal margin.

## Size

*Procambarus ablusus* is a relatively large crayfish. The type specimens ranged in carapace length from 28.5-39.0 mm and in total body length from 58.5 – 80.0 mm (Penn 1963). I collected a form I male with carapace and total lengths of 48.7 and 101.9 mm, respectively, and a female with carapace and total lengths of 43.5 and 88.0 mm, respectively (unpublished data).

## Most Like

Penn (1963) noted that the closest relative to *P. ablusus* appeared to be *P. penni*, but that *P. vioscai* is geographically its closest relative. *Procambarus (Pennides) ouachitae* also occupies the upper Yazoo basin, adjacent to the Hatchie River drainage.

Form I male *P. ablusus* can be distinguished from most other *Pennides* species in Mississippi by the distally projecting mesial process that is only slightly longer than the cephalic process. *Procambarus penni* has the most similar form I gonopod, the most distinctive differences being those described in Table 1. In female *P. ablusus*, the

combination of a spindle shaped annulus ventralis that does not obscure the cephalic margin of the postannular sclerite, a narrow trough in the anterior half of the annulus, and an antecedent sternite with a smooth caudal margin and no median notch that does not obscure the annulus is unique in the subgenus.

Table 1. Most distinctive differences in form I gonopods of *P. ablusus* and *P. penni* (based on Hobbs 1951, Penn 1963).

Character	<i>P. ablusus</i>	<i>P. penni</i>
Mesial process	directed distad	directed caudodistad
Cephalic process	lying cephalolaterad of central projection	lying cephalomesiad of central projection
Central projection	rounded, somewhat hooked caudally at distal end	truncate distally

## Life History

Form I males have been collected in April, May, and in June or July (note: a discrepancy exists between the species description and the catalog record regarding the month the holotype was collected)(Penn 1963, Bouchard 1972; MS crayfish database, this website; unpublished data). Bouchard (1972) stated that females occupy burrows while ovigerous. Juveniles were collected in September, October, November, January, March, and May (Penn 1963; MS crayfish database, this website).

## Crayfish Associates

*Procambarus ablusus* has been collected with *Cambarus striatus*, *Orconectes etnieri*, *O. p. palmeri*, *O. wrighti*, *P. a. acutus*, *P. clarkii*, *P. hayi*, and *P. viaeviridis* (Bouchard 1972, Bouchard and Bouchard 1976; MS crayfish database, this website).

## Conservation Status

Bouchard and Bouchard (1976) noted that *P. ablusus* was rare in the Hatchie River drainage of MS and Tennessee but very common in some localities of the Forked Deer River drainage farther north in Tennessee.

American Fisheries Society ranking: Currently Stable

Heritage global ranking: G4 (apparently secure)

State of Mississippi: Tier 2 (in need of timely conservation action and/or research)(MDWFP 2005).

See (Taylor et al. 2007) for further explanation of American Fisheries Society and Heritage rankings.

## Species Description

Penn, G.H. 1963. A new crawfish from the Hatchie River in Mississippi and Tennessee (Decapoda, Astacidae). Proceedings of the Biological Society of Washington 76:121-125.

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